

What is claimed is:

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1. A method for accessing data in a file stored on at least one of a plurality of removable data storage media in an automated storage library such that peripheral storage drives in the library are transparent to a host processor, the data storage media storing a plurality of 50 volumes, one of the volumes including the file to be accessed, the automated storage library including a plurality of internal peripheral storage drives, a plurality of data storage media storage cells, automated means for transferring a data storage medium between the 55 plurality of internal peripheral storage drives and the plurality of storage cells, and a controller coupled to each of the plurality of internal peripheral storage drives, the automated means, and the host processor, the controller storing the location within the library of 60 each of the plurality of volumes, the method comprising the machine executed steps of:

the controller receiving a request from a host processor to access a file on a volume in the library, the request specifying the file, the volume, and the 65 library;

the controller determining the location within the library of the volume specified in the request;

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the controller allocating at least one of the internal peripheral storage drives;

the automated means transferring the volume specified in the request to said at least one of the internal peripheral storage drives which has been allocated and mounting said volume therein; and

the host processor, unaware in which of the internal peripheral storage drives that the volume specified in the request has been mounted read/write accessing data in the file specified in the request via communications routed to said at least one of the internal peripheral storage drives by the controller.

2. The method of claim 1 wherein the request is in a format used by the host processor to access a file on a data storage medium mounted in a peripheral storage drive coupled to the host processor, with a specification of a peripheral storage drive coupled to the host processor replaced with a specification of the library and a specification of a subdirectory in a peripheral storage drive coupled to the host processor replaced with a specification of a volume in the library.

3. An automated storage library capable of allowing access to data in a file stored on at least one of a plurality of removable data storage media therein such that peripheral storage drives in the library are transparent to a host processor, the data storage media storing a plurality of volumes, one of the volumes including the file to be accessed, the automated storage library comprising:

a plurality of internal peripheral storage drives;
a plurality of storage cells;
automated means for transferring a data storage medium between the plurality of internal peripheral storage drives and the plurality of storage cells; and
a controller coupled to each of the plurality of internal peripheral storage drives, the automated means, and the host processor, the controller storing the location within the library of each of the plurality of volumes, the controller including machine-executed means for:
receiving a request from the host processor to access a file on a volume in the library, the request specifying the file, the volume, and the library;
determining the location within the library of the volume specified in the request;
allocating at least one of the internal peripheral storage drives;
instructing the automated means to transfer the volume specified in the request to said at least one of the internal peripheral storage drives which has been allocated and to mount said volume therein;
and
allowing the host processor, unaware in which of the internal peripheral storage drives that the volume specified in the request has been mounted to have read/write access to data in the file specified in the request by routing communications between the host processor and said at least one of the internal peripheral storage drives.

4. The automated storage library of claim 3 wherein the request is in a format used by the host processor to access a file on a data storage medium mounted in a peripheral storage drive coupled to the host processor, with a specification of a peripheral storage drive coupled to a host processor replaced with a specification of the library and a specification of a subdirectory in a peripheral storage drive coupled to the host processor replaced with a specification of a volume in the library.

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1 5. In a data storage subsystem having an automated storage
2 library and a controller, said automated storage library
3 including a plurality of storage drives, a plurality of
4 storage cells, and an automated means for transferring at
5 least one of a plurality of removable data storage media
6 between said storage drives and said storage cells, each of
7 said removable data storage media storing a plurality of
8 volumes, each of said plurality of volumes including at
9 least one file, said controller coupled to each of said
10 storage drives, said automated means, and a host processor,
11 said controller storing a location within said automated
12 storage library for each of said plurality of volumes, a
13 method for accessing data from a selected file within said
14 automated storage library such that said storage drives are
15 transparent to said host processor, said method comprising
16 the machine executed steps of:

17 said controller receiving a request from said host
18 processor to access said selected file within said automated
19 storage library, said request identifying said selected
20 file, a specified volume, and said automated storage
21 library;

22 said controller determining the location within said
23 automated storage library of said specified volume;

24 said controller allocating at least one of said storage
25 drives;

26 said automated means transferring said specified volume
27 to said at least one allocated storage drives, and mounting
28 said specified volume therein; and

29 said host processor, unaware in which of said storage
30 drives that said specified volume has been mounted,
31 read/write accessing data in said selected file via
32 communications routed to said at least one allocated storage
33 drives by said controller.

1 6. The method of claim 5 wherein said request is in a
2 format used by the host processor to access a file on a data
3 storage medium mounted in a storage drive coupled to the
4 host processor, with a specification of a storage drive
5 coupled to the host processor replaced with a specification
6 of the library, and a specification of a subdirectory in a
7 storage drive coupled to the host processor replaced with a
8 specification of a volume in the library.

1 7. A data storage subsystem coupled to a host processor,
2 said data storage subsystem comprising:
3 an automated storage library allowing access to data in
4 a file stored on one of a plurality of removable data
5 storage media such that peripheral storage drives in said
6 library are transparent to said host processor, said data
7 storage media storing a plurality of volumes, one of said
8 plurality of volumes including said file to be accessed,

9 said automatic storage library comprising:

10 a plurality of peripheral storage drives;

11 a plurality of storage cells; and

12 an automated means for transferring at least one

13 of a said data storage media between said peripheral

14 storage drives and said storage cells; and

15 a controller coupled to each of said peripheral storage

16 drives, said automated means, and said host processor, said

17 controller storing a location within said library for each

18 of said plurality of volumes, said controller including

19 machine executed means for:

20 receiving a request from said host processor to

21 access a selected file within said library, said

22 request identifying said selected file, a specified

23 volume, and said library;

24 determining the location within said library of

25 said specified volume;

26 allocating at least one of said peripheral storage

27 drives;

28 instructing said automated means to transfer said

29 specified volume to said at least one allocated

30 peripheral storage drives, and mounting said specified

31 volume therein; and

32 allowing said host processor, unaware in which of

33 said peripheral storage drives that said specified

34 volume has been mounted, read/write access to data in

35 said selected file by routing communications to said at
36 least one allocated peripheral storage drive.

1 8. The data storage subsystem of claim 7 wherein said
2 request is in a format used by the host processor to access
3 a file on a data storage medium mounted in a storage drive
4 coupled to the host processor, with a specification of a
5 storage drive coupled to the host processor replaced with a
6 specification of the library, and a specification of a
7 subdirectory in a storage drive coupled to the host
8 processor replaced with a specification of a volume in the
9 library.

10 9. An article of manufacture for use in a data storage
11 subsystem having an automated storage library and a
12 controller, said data storage subsystem for accessing data
13 in a file on one of a plurality of volumes stored within
14 said library such that peripheral storage drives within said
15 library are transparent to a host processor coupled to said
16 data storage subsystem,

17 said article of manufacture comprising a computer
18 usable storage medium having a computer readable program
19 code embodied in said medium which may cause said controller
20 to:

21 store a location within a plurality of storage cells
22 for each of said plurality of volumes within said library;

14 receive a request from said host processor to access a
15 selected file within said library, said request identifying
16 said selected file, a specified volume, and said library;
17 determine the location within said library of said
18 specified volume;
19 allocate at least one of said peripheral storage drives
20 within said library, said controller coupled to each of said
21 peripheral storage drives;
22 instruct an automated means within said library to
23 transfer said specified volume from said location within
24 said plurality of storage cells to said at least one
25 allocated peripheral storage drives, and mounting said
26 specified volume therein; and
27 allow said host processor, unaware in which of said
28 peripheral storage drives that said specified volume has
29 been mounted, read/write access to data in said selected
30 file by routing communications to said at least one
31 allocated peripheral storage drive.